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(54) PRODUCTION OF HOT-DIP GALVANIZED HOT ROLLED HIGH TENSILE STRENGTH STEEL PLATE

(57)Abstract:

PURPOSE: To industrially mass-produce a hot-dip galvanized hot rolled high tensile strength steel plate excellent in workability, weldability, and corrosion resistance.

CONSTITUTION: A slab of a steel which has a composition containing 0.05-0.25% C, $\leq 2.5\%$ Si, 0.8-2.5% Mn, and $\leq 2.0\%$ Al and satisfying $[Si (\%) + Al (\%) \geq 1.0]$ is reheated up to $\geq 1050^\circ \text{C}$. After hot finish rolling is finished at a temp. in the region not lower than the Ar_3 point, the resulting plate is cooled down to $\leq 650^\circ \text{C}$ at 220°C/s cooling rate, or, after finish rolling is finished the resulting plate is subjected to three-stage cooling consisting of cooling down to $600-700^\circ \text{C}$ at a rate of $(20 \text{ to } 80)^\circ \text{C/s}$, successive air cooling for 1-10sec, and further cooling down to $350-550^\circ \text{C}$ at a rate of $(20 \text{ to } 100)^\circ \text{C/s}$, followed by coiling. The hot rolled steel plate is heated up to $720-950^\circ \text{C}$, cooled down to $350-500^\circ \text{C}$ at a rate of $(5-80)^\circ \text{C/s}$, and held for 30-200sec. Successively, the plate is immersed in a molten zinc bath and then subjected to alloying treatment at $480-550^\circ \text{C}$ for 8-100sec.